

1 IN THE CLAIMS:

2

3 Clean version of the pending claims:

4

5 1. A method of using Si-Ge-C in selective etch applications, comprising:
6 growing one or more layers on a single crystal silicon substrate, at least one of
7 which is a Si-Ge-C layer, wherein the carbon of the Si-Ge-C layer is an amount from 1
8 to 10 atomic percent and sufficient to exhibit etch selectivity with respect to the single
9 crystal silicon substrate and/or one or more of the layers adjacent the Si-Ge-C layer;
10 and

11 etching with a liquid etchant, the Si-Ge-C layer and the single crystal silicon
12 substrate and/or one or more of the layers adjacent the Si-Ge-C layer.

13

14 49. The method of claim 1, wherein the Si-Ge-C layer etches slower than the
15 one or more adjacent layers.

16

17 50. The method of claim 1, wherein the Si-Ge-C layer etches slower than the
18 single crystal silicon substrate.

19

20 51. The method of claim 1, wherein the Si-Ge-C layer etches faster than the one
21 or more adjacent layers.

22

23 52. The method of claim 1, wherein the Si-Ge-C layer etches faster than the
24 single crystal silicon substrate.

25

26 53. The method of claim 1, wherein the etching includes applying an etchant
27 selected from the group of KOH and HNA.

28

29

30

- 1
- 2 54. A method of using Si-Ge-C in selective etch applications in conjunction with
- 3 a single crystal substrate, comprising:
- 4 growing one or more epitaxial layers sequentially, starting at the single crystal
- 5 substrate surface, wherein at least one of the epitaxial layers comprises Si-Ge-C,
- 6 wherein the carbon of the Si-Ge-C layer is from 1 to 5 atomic percent; and
- 7 etching with a liquid etchant, the Si-Ge-C layer and the single crystal substrate
- 8 and/or one or more of the epitaxial layers adjacent the Si-Ge-C layer.
- 9
- 10 55. The method of claim 54, wherein the Si-Ge-C layer etches slower than the
- 11 one or more adjacent epitaxial layers.
- 12
- 13 56. The method of claim 54, wherein the Si-Ge-C layer etches slower than the
- 14 single crystal substrate.
- 15
- 16 57. The method of claim 54, wherein the Si-Ge-C layer etches faster than the
- 17 one or more adjacent epitaxial layers.
- 18
- 19 58. The method of claim 54, wherein the Si-Ge-C layer etches faster than the
- 20 single crystal substrate.
- 21
- 22 59. The method of claim 54, 55, 56, 57, or 58, wherein the single crystal
- 23 substrate is a material selected from the group of silicon, silicon-germanium, and
- 24 germanium.
- 25
- 26 60. The method of claim 54, wherein the etching includes applying an etchant
- 27 selected from the group of KOH and HNA.
- 28
- 29
- 30

1 61. A method of using Si-Ge-C in selective etch applications in conjunction with
2 a substrate, comprising:

3 growing one or more layers sequentially, starting at the substrate, wherein at
4 least one of the layers comprises Si-Ge-C, wherein the carbon of the Si-Ge-C layer is
5 from 1 to 10 atomic percent; and

6 etching with a liquid etchant, the Si-Ge-C layer and one or more layers adjacent
7 to the Si-Ge-C layer and/or the substrate.

8

9 62. The method of claim 61, wherein the Si-Ge-C layer etches slower than the
10 one or more adjacent layers.

11

12 63. The method of claim 61, wherein the Si-Ge-C layer etches slower than the
13 substrate.

14

15 64. The method of claim 61, wherein the Si-Ge-C layer etches faster than the
16 one or more adjacent layers.

17

18 65. The method of claim 61, wherein the Si-Ge-C layer etches faster than the
19 substrate.

20

21 66. The method of claim 61, 62, 63, 64, or 65, wherein the substrate is a
22 material selected from the group of silicon, silicon-germanium, and germanium.

23

24 67. The method of claim 61, wherein the etching includes applying an etchant
25 selected from the group of KOH and HNA.

26

27

28

29

30

1
2 68. A method of using Si-Ge-C in selective etch applications, comprising:
3 growing one or more layers on a single crystal silicon substrate, at least one of
4 which is a Si-Ge-C layer, wherein the carbon of the Si-Ge-C layer is in an amount from
5 1 to 10 atomic percent and sufficient to exhibit etch selectivity with respect to the single
6 crystal silicon substrate and/or one or more of the layers adjacent the Si-Ge-C layer;
7 and

8 etching with a liquid etchant, the Si-Ge-C layer and the single crystal silicon
9 substrate and/or one or more of the layers adjacent the Si-Ge-C layer wherein the Si-
10 Ge-C layer etches slower than the one or more adjacent layers.

11
12 69. A method of using Si-Ge-C in selective etch applications, comprising:
13 growing one or more layers on a single crystal silicon substrate, at least one of
14 which is a Si-Ge-C layer, wherein the carbon of the Si-Ge-C layer is in an amount from
15 1 to 10 atomic percent and sufficient to exhibit etch selectivity with respect to the single
16 crystal silicon substrate and/or one or more of the layers adjacent the Si-Ge-C layer;
17 and

18 etching with a liquid etchant, the Si-Ge-C layer and the single crystal silicon
19 substrate and/or one or more of the layers adjacent the Si-Ge-C layer wherein the Si-
20 Ge-C layer etches faster than the one or more adjacent layers.

21
22 70. A method of using Si-Ge-C in selective etch applications in conjunction with
23 a single crystal substrate, comprising:

24 growing one or more epitaxial layers sequentially, starting at the single crystal
25 substrate surface, wherein at least one of the epitaxial layers comprises Si-Ge-C,
26 wherein the carbon of the Si-Ge-C layer is up to 5 atomic percent; and

27 etching with a liquid etchant, the Si-Ge-C layer and the single crystal substrate
28 and/or one or more of the epitaxial layers adjacent the Si-Ge-C layer wherein the Si-Ge-
29 C layer etches slower than the one or more adjacent epitaxial layers.

1 71. A method of using Si-Ge-C in selective etch applications in conjunction with
2 a single crystal substrate, comprising:

3 growing one or more epitaxial layers sequentially, starting at the single crystal
4 substrate surface, wherein at least one of the epitaxial layers comprises Si-Ge-C,
5 wherein the carbon of the Si-Ge-C layer is up to 5 atomic percent; and

6 etching with a liquid etchant, the Si-Ge-C layer and the single crystal substrate
7 and/or one or more of the epitaxial layers adjacent the Si-Ge-C layer wherein the Si-Ge-
8 C layer etches faster than the one or more adjacent epitaxial layers.

9
10 72. A method of using Si-Ge-C in selective etch applications in conjunction with
11 a substrate, comprising:

12 growing one or more layers sequentially, starting at the substrate, wherein at
13 least one of the layers comprises Si-Ge-C, wherein the carbon of the Si-Ge-C layer is
14 up to 10 atomic percent; and

15 etching with a liquid etchant, the Si-Ge-C layer and one or more layers adjacent
16 to the Si-Ge-C layer and/or the substrate wherein the Si-Ge-C layer etches slower than
17 the one or more adjacent layers.

18
19 73. A method of using Si-Ge-C in selective etch applications in conjunction with
20 a substrate, comprising:

21 growing one or more layers sequentially, starting at the substrate, wherein at
22 least one of the layers comprises Si-Ge-C, wherein the carbon of the Si-Ge-C layer is
23 up to 10 atomic percent; and

24 etching with a liquid etchant, the Si-Ge-C layer and one or more layers adjacent
25 to the Si-Ge-C layer and/or the substrate wherein the Si-Ge-C layer etches faster than
26 the one or more adjacent layers.

27

28

29

30